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ABSTRACT

This 34-item bibliography brings together the random articles about programing, which have appeared in a variety of publications, to establish a resource for architectural students and practitioners who need a clearer understanding of the nature of architectural programing. The entries are divided into those that serve as an introduction to either the content of or the need for architectural programing and those that offer an outline format for the development of programs. (Author)

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ARCHITECTURAL/BUILDING PROGRAMMING:
An Annotated Bibliography

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INTRODUCTION

Within the context of architecture, the increased need for an environment which is responsive to individual and social behavior and a high level of operational efficiency has generated a demand for a sophisticated analytically developed pre-design information document "the architectural program".

The architectural program can be defined as: that body of information which describes, in terms of the environmental quality and equipment, an individual human, social and/or machine process and establishes the objectives and criteria for evaluation, immediately and during a projected future, of the qualitative relationship between the process and the building form in which it is housed.

Since architectural programming is a relatively new service being offered by architects, there is no overall inner-profession agreement as to a methodology for the programming process. Because of the differences in philosophies and methodologies employed by the various architectural firms, no programming manuals or texts which give clear principles or directions have emerged.

Until such time when there is a programming format which has acceptance by a majority of the built-environmentalists (planners, architects, interior designers), the varied and extensive collection of publications which are the result of environmental design and behavioral research cannot be effectively ordered to provide step-by-step methods for the programming process.

The purpose of this bibliography is to bring together the random articles about programming, which appear in a variety of publications, in order to establish a resource for architectural students and practioners who have the need for a clearer understanding of the nature of architectural programming.

While some of the stages of the programming process are derived from the methods employed by various disciplines (social sciences, operations research, computer science, etc.), this bibliography in no way attempts to introduce interdisciplinary articles but rather concentrates on those publications which address the overall subject of architectural programming. Because of the scale and diversity of the published material from other disciplines, the 'how to' of programming will, at this time, have to be developed through individual research by those schools and offices which deem it necessary to introduce a formal structure from which to either teach or practice programming.

As more bibliographic entries are available, it will no doubt be necessary to divide a programming bibliography into many sections, however, because of the quantity and content of the articles sited, this bibliography will be divided into two sections. The first is those entries which either serve as an

introduction to the content of or need for architectural programming and the second is those entries which offer an outline format for developing programs.

It is necessary to state that there are a few writings which do not appear in this bibliography but may be found sited in other publications. The reason for this is because some government publications which are no longer in print, copies of speeches which are nearly impossible to obtain and publications which exist in only one or two libraries were judged by the author as more difficult to obtain than the value of the contents merit.

The author would appreciate, at any time, information concerning published or non-published entries not appearing in this bibliography which may be obtained with relative ease by a majority of the lay architects.

GENERAL INTRODUCTIONS

Agostini, Edward J. "Programming: Demand Specialty in a Complex World." Architectural Record, September 1968, pp. 93-94.

An article written by the director of a firm which serves as programming consultants. By way of example projects, the article discusses the scope of and benefits contingent with an architectural program.

Agostini, Edward J. "The Value of Facilities Programming to the Client." Building Research, April 1969, pp. 28-32.

An introductory article to the process of architectural programming which discusses in terms of dollars and cents the value of skillful programming.

Alexander, Christopher. "From a Set of Forces to a Form." The Man-Made Object. Edited by Gyorgy Kepes. New York: George Braziller, 1966.

An introduction to programming is made by the presentation of three methods for determining the needs associated with a design problem. The author defines needs as forces which contribute to the final form of a design and presents numerical, analog, and relational methods for discovering these needs when they are a part of a complex man-made system.

Alexander, Christopher. Notes on the Synthesis of Form. Cambridge: Harvard University Press, 1971.

An introduction to some of the initial thinking which gave rise to the specialty area of design methodology. The introduction argues the case for the kind of rationality of thinking which must be the basis for any sound architectural program. For the reader who has the mathematical background, Appendix 2 is a good primer in the method of decomposition currently being used in conjunction with architectural program interaction matrix decomposition.

Alexander, Christopher. "The Theory and Invention of Form". Architectural Record, April 1965, pp. 177-86.

This article serves as an introduction to the need for programming by discussing the assumption that a proper physical form cannot be achieved until there is some programmatic clarity in the designer's mind and actions.

Becker, Nathaniel. "Space Analysis in Architecture." American Institute of Architects Journal, April 1959, pp. 40-47.

The author is a partner in a pioneer firm in the field of space analysis. The article uses one of his firm's projects, a municipal services building for the city of Philadelphia, as an instrument for illustrating both the value and need for space analysis as an analytical programming research method.

Clark, Jeffrey E. "Office Space Programming." The Office, June 1971, pp. 27-36 and 125.

A very well documented 'cooks tour' of the process of space programming. The basic process described in the article is a fine introduction to the process necessary for architectural programming.

Cogswell, Arthur R. "Programming and a Computer-Based Cost Analysis System." Building Research, April 1969, pp. 33-35.

The author discusses the value of using a computerized cost analysis system in conjunction with the architectural program in order to dissolve the barrier between programming and design and as a means of supplying program material in the form of performance criteria.

Davis, Gerald. "The Independent Building Program Consultant." Building Research, April 1969, pp. 16-21.

A very interesting article written by the director of a programming firm. By using examples of various projects, the author explains the major activity areas which make up the programming procedure used by his firm.

Demoll, Louis. "Operations Programming and Planning." Comprehensive Architectural Services-General Principles and Practice. Edited by William Dudley Hunt Jr. New York: McGraw-Hill Book Co., 1965.

An illustration of operations (functional processes) programming for industrial operations with a discussion of why and how the general architectural office should attempt to introduce its practice to the area of operations programming.

Evans, Benjamin H. and C. Herbert Wheeler, Jr. Emerging Techniques 2 Architectural Programming. Washington, D.C.: The American Institute of Architects, 1969.

This book is a well researched and well written document which gives an introductory definition for architectural programming. The introduction is supplemented with a varied collection of programming techniques which are representative of the current 'in practice' state of the art.

Gutman, Robert. "The Sociological Implications of Programming Practices." Building Research, April 1969, pp. 26-27.

The author regards or defines the architectural program as a sociological document. Based on his definition, he develops an argument for the introduction of a third party to serve as a mediator between the architect and client during the programming phase. He suggests that sociologist might perform the mediating role.

Juster, Howard H. "Introduction to Physical Programming and Planning." Annals of the New York Academy of Sciences, 128, September 1965, pp. 629-32.

A discussion of the knowledge and methods necessary for the evaluation of medical environments and a suggestion as to how more effective programming of medical environments can be fostered.

Leonard, William. "The Anatomy of Office Space Planning." The Office, June 1971, pp. 49-53.

This article provides an overview of the entire process of office space planning. While it is directed more toward interior architecture, the process which is depicted serves as a guide to the planning of an architectural program.

Richardson, Stephen. "The Value of a Program to the Architect." Building Research, April 1969, pp. 40-42.

An introduction to the need for architectural programming is given by a discussion of the quantity and quality of information needed to design current complex function buildings.

Rossetti, Louis. "Building Programming." Comprehensive Architectural Services-General Principles and Practice. Edited by William Dudley Hunt Jr. New York: McGraw-Hill Book Co., 1965.

The author discusses the need for building programming using a program and master plan for a college and a foundry as a means of illustration. The article further discusses the personnel and kinds of services which should be employed in the programming process.

Seaton, Richard. "Research for Building Programming." Building Research, April 1969, pp. 36-39.

An article which discusses the need for research oriented architects to be involved in programming and the effects on programming which can be expected if research methods are applied.

Souder, James J. "Architectural Programming and Planning for Medical Centers." Annals of the New York Academy of Sciences, 128, September 1965, pp. 690-703.

An appeal for the use of a systems approach to structuring the information necessary for medical center programming. The structured approach would permit architects and planners the advantages of technology (computers) in the program formulation process.

Studer, Raymond G. "On Environmental Programming." Arena, May 1966, pp. 290-96.

This article should serve as the first piece of required reading for anyone interested in the specialty area of architectural programming. The author speaks of the subject of overall environmental programming in the same terms which must necessarily be applied to architectural programming. Through a discussion of behavioral and physical systems as a means of describing the context for environmental problem formulation, the author effectively defines both the complexities in attaining and the increasing need for sophisticated programs.

Studer, R.G. and D. Stea. "Architectural Programming, Environmental Design and Human Behavior." Journal of Social Issues, Vol. 22, No. 4, October 1966, pp. 127-36.

A well written article which provides an introductory definition of environmental design and discusses the need for environmental problem formulation (design programming) in terms of behavioral systems rather than building systems.

Swinburne, Herbert H. "Change is the Challenge." American Institute of Architects Journal, May 1967, pp. 83-90.

This article discusses the forces which will shape the future of architecture. The author divides these forces into those generated outside the profession and those generated from within. Architectural programming is classified as one of the forces generated from within the profession helping to foster change. The change is occurring because of the forces in the profession which are creating specific programming systems and the research which uses sophisticated programming methodologies.

Turner, George E. "Toward the Creation of a Format for Architectural Programming." Paper distributed at AR/9 the Annual AIA Research Conference, Chicago, Illinois, November 17, 1972.

An exploration of the existing techniques for architectural programming through a literature search concludes that there exists underlying unifying principles in the many diverse approaches. A proposal for a methodological system of discovery of these principles by the 'theory' of general system theory is presented along with the recommendation of a practicable means for application.

Wheeler, Lawrence and Ewing H. Miller. "Human Factors Analysis." Comprehensive Architectural Services-General Principles and Practice. Edited by William Dudley Hunt Jr. New York: McGraw-Hill Book Co., 1965.

Frequency and importance of interactions among job functions are generated by the method of human factors analysis described by the authors. A presentation of the human factors vector analysis process used in conjunction with the plan diagrams of a specific project illustrates the capability of this method of analysis in conjunction with architectural programming.

White, Edward T. Introduction to Architectural Programming. Tucson, Arizona: Architectural Media, 1972.

As far as can be determined, this is the first publication to be directed toward use as a text for the formalized teaching of architectural programming. This book is a fine introduction to the subject without overloading the beginning reader with a rigorous presentation of social and physical science research techniques.

OUTLINE FORMATS

Briggs, William. "Pre-Programming and Programming for the Live Performaning Arts." American Institute of Architects Journal, December 1964, pp. 65-66.

While the jargon and lack of in-depth thought place this article in the pre-programming specialty era, the argument of the need for programming in addition to the preliminary checklist are valid for various building types.

"Design Guide." The Architects Journal.

The series of articles which follow are called design guides or design briefs. They are organized with respect to the English method of architectural practice, however, they serve as the most complete documentation of an architectural program format in existence. Each guide sited is specifically designed for a particular building type. They are excellent models for developing a programming format for both architectural firms and architectural schools.

Administrative and Office Buildings
Vol. 142, No. 24, December 15, 1965, pp. 1459-80.
Vol. 142, No. 25, December 22, 1965, pp. 1529-53.

Shop Spaces, Fixtures and Equipment
Vol. 143, No. 5, February 2, 1966, pp. 357-78.
Vol. 143, No. 6, February 9, 1966, pp. 429-42.

Shop Buildings
Vol. 143, No. 9, March 2, 1966, pp. 597-630.

Garage and Service Station Buildings
Vol. 143, No. 12, March 23, 1966, pp. 771-97.

"Design Guide." The Architects Journal. (continued)

Industrial Production Spaces
Vol. 143, No. 15, April 13, 1966, pp. 953-84.
Vol. 143, No. 16, April 20, 1966, pp. 1083-1107.

Car Parking Buildings
Vol. 143, No. 25, June 22, 1966, pp. 1551-72.

Industrial Storage Buildings
Vol. 144, No. 3, July 20, 1966, pp. 179-99.
Vol. 144, No. 4, July 27, 1966, pp. 247-64.

General Practice Surgery Spaces
Vol. 144, No. 7, August 17, 1966, pp. 421-37.
Vol. 144, No. 8, August 24, 1966, pp. 489-501.

Dental Practice Surgery Spaces
Vol. 144, No. 9, August 31, 1966, pp. 547-61.

Drainage Installations
Vol. 144, No. 15, October 12, 1966, pp. 923-27.

Roads and Paving
Vol. 144, No. 9, November 9, 1966, pp. 1171-76.

General Hospitals
Vol. 144, No. 21, November 23, 1966, pp. 1289-1314.
Vol. 144, No. 22, November 30, 1966, pp. 1359-92.

Theatre Buildings
Vol. 145, No. 5, February 1, 1967, pp. 325-35.

Cinema Buildings
Vol. 145, No. 9, March 1, 1967, pp. 567-79.

Public House Buildings
Vol. 145, No. 13, March 29, 1967, pp. 789-801.

Sports Hall Buildings
Vol. 145, No. 14, April 5, 1967, pp. 859-72.

Swimming Bath Buildings
Vol. 145, No. 24, June 14, 1967, pp. 1431-46.

Church Buildings
Vol. 146, No. 6, August 9, 1967, pp. 373-88.
Vol. 146, No. 7, August 16, 1967, pp. 431-39.

College and University Buildings
Vol. 147, No. 2, January 10, 1968, pp. 103-16.

Library Buildings
Vol. 147, No. 8, February 21, 1968, pp. 443-56.

Hostels and Halls of Residence
Vol. 147, No. 15, April 10, 1968, pp. 769-84.
Vol. 147, No. 16, April 17, 1968, pp. 837-45.

Environmental Criteria: MR Preschool Day Care Facilities. College Station, Texas: Research Center, College of Architecture and Environmental Design, Texas A and M University, (no date).

An extremely scholarly research project which establishes guidelines for the construction or renovation of day care centers. Parts 4 and 5 establish a basis for the development of a programming checklist which can be used for almost any type of building function.

Evans, Benjamin H. "Architectural Programming Practices." Building Research, April 1969, pp. 12-15.

This article offers an outline format for programming and discusses some of the major recurring problems integral with current programming procedures.

Horowitz, Harold. "The Programs the Thing." American Institute of Architects Journal, May 1967, pp. 94-100.

A well written article by an architect who has had a great deal of experience in developing architectural programs. The article describes the scope of each of the divisions of an eleven division format for an architectural program and also discusses the means for the application of behavioral science techniques to the collection and organization of information.

Pena, William M. "Organizing for Programming." Building Research, April 1969, pp. 8-11.

In a very organized way, the author discusses five steps for organizing programming and, as a means of further elaboration, five steps for the programming process.

Pena, William M. and William W. Caudill. "Architectural Analysis - Prelude to Design." Architectural Record, May 1959, pp. 172-82.

An excellent introduction to the need for architectural programming through an illustrative ten point outline of how one architectural firm (Caudill Rowlett Scott) approaches the process.

Pena, William M. and John W. Focke. Problem Seeking: New Directions in Architectural Programming. Houston: Caudill Rowlett Scott, Architects, Planners, Engineers, 1969.

A report/study outlining the simultaneous cooperative, analytical and creative approach to architectural programming employed by the firm of Caudill Rowlett Scott. This publication serves as a valuable model to any individual or firm interested in developing a programming format.

Pena, William and Leroy V. Cood. "Architectural Programming." Junior College Journal, October 1967, pp. 34-37.

An interesting article which argues for architectural programming as part of a team effort in conjunction with educational planning when new educational facilities are to be built. The article also gives a step-by-step outline of an analytical procedure for programming.

Sherman, Douglas R. "Building Programming at Wayne State University." Building Research, April 1969, pp. 22-25.

The Office of Capital Programs at Wayne State University in Detroit, Michigan is responsible for developing campus building programs. The author is the director of this office and he outlines the procedure used by Wayne State in developing a program.

The Architects Handbook of Professional Practice. Edited by Robert J. Piper. Washington, D.C.: AIA Publications, 1964.

An American Institute of Architects publication describing the procedures, forms and contracts necessary for the practice of architecture. Chapter 11 gives a format and example data necessary for an architectural project program.

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